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ABSTRACT

Cross-cultural psychology has begun to analyze cultural differences on collectivism and the implications of these differences for social processes such as group productivity. This study examined natural social interaction during a problem-solving task that required discussion and the establishment of a consensus. The relationship of collectivist values to social interaction was examined by comparing 10 pairs of white, English-speaking undergraduates from the United States, a highly individualistic society and 9 pairs of Hispanic undergraduates who have been found to be collectivistic. Subjects, none of whom knew each other, performed a group-process task simulation, "Lost at Sea." Pairs were videotaped while working on the task and were given a questionnaire to rate their own and the partner's behavior during the task on 32 adjectives. Transcriptions of Hispanic pairs' verbal interactions were translated to English, cultural backgrounds were disguised, and transcriptions were content-analyzed. The results revealed that, compared to the English-speaking students, Hispanic pairs tended to interact less and to evidence significantly higher probabilities of uncooperative or aggressive verbal behaviors and lower probabilities of cooperative or constructive behaviors. Because the Hispanics' collectivist orientation is more likely to be evidenced among family and friends, results must be interpreted in view of the differing affiliative patterns of the subjects. (NB)

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Cultural Differences in Social Interaction During Group Problem Solving

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Interest within cross-cultural psychology and, to a lesser extent, psychological anthropology has recently turned to analyses of cultural differences in collectivism (Hsu, 1981; Triandis, 1985) and the implications of these differences for a number of social phenomena. One social process to which collectivism is naturally relevant is group productivity. For example, cross-cultural extensions of "social loafing" research have contrasted the effort-reducing effect of groups in several collectivist societies, including Japan, Taiwan, Thailand, Singapore, Malaysia, and India with the behavior of North Americans (Gabrenya, Wang, & Latané, 1985; cf., Gabrenya, Latané & Wang, 1984). This research found that social loafing occurred on a maximizing task (Steiner, 1972) in all of the cultures sampled. Taiwanese performing a slightly more meaningful optimizing task, however, evidenced an opposite effect, working harder in groups than alone.

An examination of cultural differences in the nature of social *interaction* in group settings appears necessary. Gabrenya et al. (1985) noted that culturally-related skills such as the ability to maintain cooperative social interaction may prove more important to the productivity of stable, ongoing work groups than values simply involving task effort. Beyond attending to interaction rather than effort, they suggested that future research should use meaningful tasks. As in social psychology, much of the cross-cultural small-group research (including the social loafing research) has employed ad-hoc aggregates placed in highly socially constrictive situations unrepresentative of the natural settings the participants would encounter in any of the cultures included in the design.

The present study examined natural social interaction during a problem solving task that required discussion and the establishment of consensus--a comparatively representative setting in an industrialized society. A methodology adapted from the systems-theory orientation (Gottman, 1979) was used that allowed for examination of sequential dependencies among behaviors. The relationship of collectivist values to social interaction was examined by employing middle-class Anglo (white, English-speaking) participants from the U.S., a highly individualistic society (Hofstede, 1980), and middle-class Hispanic international students, who have been found to be collectivistic (or "allocentric" or "simpatico"; Triandis et al., 1984).

Method

Participants included 10 pairs of Anglo and 9 pairs of Hispanic undergraduate students, all strangers to each other. The Hispanics were from several Latin-American countries, including Puerto-Rico, Venezuela, Mexico, and Ecuador. All partici-

pants were children of upper-middle class families, although members of the Hispanic sample were generally wealthier than members of the Anglo sample.

Participants performed a group-process task simulation termed "Lost at Sea." In this task, the group is asked to rank-order a list of 15 items they would put on a lifeboat if their ship were sinking in the open ocean. The task is used frequently in group dynamics training courses. Participants were run in their native languages by a bilingual experimenter. All materials were in the participants' native languages. Spanish-language materials were translated from English through the "committee approach" (Brislin, Lonner, & Thorndike, 1973) by bilinguals native to Cuba, Puerto Rico, and Columbia, allowing for resolution of dialectical differences among these countries.

The procedure was straightforward. Participants were escorted to a room with a large one-way mirror, lavaliere microphones were attached to their shirts, and the presence of a video camera behind the mirror was pointed out to them (given the nature of the room, the camera's presence could not be concealed). They were asked to read written instructions, shown the task scenario and answer sheet, given one pencil to share, and told to finish in about 15 minutes. The experimenter left the room, and returned 15 minutes later. All 19 pairs finished the task within 15 minutes. A questionnaire was given to each participant that asked them to rate their own and their partner's behavior during the task on 32 adjectives, e.g. *intelligent* (inteligente), *agreeable* (agradable), *interrupted frequently* (interrumpe frecuentamente).

Results

Transcriptions of the Spanish pairs' verbal interactions were translated to English, the cultural backgrounds of the participants were disguised, and each transcription was content-analyzed using a 16-code verbal interaction scoring system adapted from Gottman's (1979) work with marital interaction, yielding 2,518 discriminable verbal utterances. The coding was performed by two individuals, and these two sets of codes were reconciled by the first author. Data from the video recordings are not discussed in this abstract.

Volume of interaction.-- Hispanic pairs tended to interact less than Anglo pairs, producing an average of 114 coded utterances versus the Aglos' 150, $t(17)=1.44$, $p<.20$.

Frequencies.--The frequencies with which the 16 types of utterances were evidenced across cultures revealed that Hispanic and Anglo participants behaved counter to predictions derived from earlier self-report studies. Hispanics evidenced significantly higher probabilities of uncooperative or aggressive verbal behaviors (e.g., disagreement) and lower probabilities of cooperative or constructive behaviors (e.g., agreement with rationale) than Anglos, $ps<.05$.

Sequential analysis.--A sequential analysis was performed following the procedure suggested by (Sackett, 1979). The conditional probabilities for each code given each other code were compared to the base-rate probabilities for each code to yield an index of the extent to which an utterance by one partner affected the verbal response of the other. This procedure was performed for lags of 1, 2 and 3. Figure 1 presents statistically significant sequences for each culture. As can be seen in Figure 1, Hispanics produced more highly articulated, lengthy interaction sequences involving disagreements, whereas Anglos evidenced more highly articulated interactions involving suggesting and agreeing with suggested task solutions.

Behavioral ratings.--Self-report data collected after the experimental session revealed that participants had some insight into their behavior. Hispanics rated themselves as possessing more negative individualistic (e.g., "show off") and negative task-related (e.g., "became angry") characteristics during the problem-solving exercise than did Anglos, $ps<.05$.

Discussion

The study found that Hispanics were less cooperative and harmonious in their interaction during problem solving than Anglos, contrary to previous self-report research. These results must be interpreted in view of the differing affiliation patterns of Hispanic and Anglo individuals. Hispanics, as is true of many non-North Americans, are more formal in relations with strangers than are North Americans. Their collectivist orientation is more likely to be evidenced among primary group members such as family and friends (see Triandis, 1985). Previous self-report data concerning Hispanic collectivism (e.g., Triandis et al., 1984) may reflect value-orientations that apply exclusively to such in-groups, pointing to the importance of behavioral measures to supplement these apparently idealized reports. The present data suggest that Americans may form groups that are at least initially more cooperative and harmonious than individuals from more collectivist societies, although future research may find that this initial cooperative advantage is reduced or reversed in longer-standing primary groups.

These results point to the importance of attending to, and varying, the history of the groups used in such research. The present study employed ad hoc groups, the results of which suggest that ongoing groups would have yielded different findings. A future study should include type of relationship as an additional independent variable.

Methodologically, this study demonstrates a method for assessing social interaction in task-oriented groups and for behaviorally validating some culture- and-personality propositions. Much contemporary cross-cultural research utilizes self-report measures that may tap into emic conceptualizations or may assess respondents' knowledge of normative values. As research in social psychology demonstrated during the 1970s, the relationship between attitudes and norms on the one

hand and behavior on the other is at best problematic, pointing to the need for behavioral methods in cross-cultural research.

Several problems with the present study should be noted. First, as an exploratory study, the behavior coding scheme was adopted from a different area of research and modified to maximize the degree to which the verbal behaviors of our participants could be coded. It would be naive to claim that such a technique is theory- or value-free, and we must assume that our preconceptualizations about which behaviors are important or interesting in Anglo-Hispanic comparisons influenced the coding categories that were developed. These preconceptualizations are undoubtedly culture-bound, suggesting that our research is itself an emic enterprise. Rather than dismiss our findings, however, they should be compared to those of scientists who approach the same general phenomena from another cultural perspective. The difficulties involved in such a multicultural research program, and the probabilities of such research ever being carried out or reported in the United States are discussed elsewhere (Gabrenya, in preparation).

A second problem in this research is the tremendous effort required to obtain interpretable data. Future research must find a way to combine such observation of natural interaction with a more efficient, less costly data preparation process. One approach, the standardization of response categories at data acquisition, is easy to implement and has been employed in many social psychological research studies such as those found in the bargaining and gaming literatures. However, much is lost by abandoning natural interaction and adopting the distilled irreality of social psychological research. For example, the effect of scientific preconceptualizations on choice of response categories is magnified when the categories are imposed at the data collection rather than the data reduction phase of the research. A methodological breakthrough is clearly needed, one that will undoubtedly come from intercultural interactions among social scientists rather than from purely U.S. laboratories.

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Figure 1: Interaction Sequences for Anglo and Hispanic participants.